

Eötvös Loránd University Faculty of Humanities

Doctoral School of Literary Studies Library Science Program

Bognárné Lovász Katalin:

Knowledge management in libraries

**with special emphasis on the knowledge management supporting roles of
academic libraries**

Theses

Supervisor: dr. Pálvölgyi Mihály

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(1) Aims of the research

The main aims of the research is to reveal the knowledge management activities and initiatives in Hungarian libraries, and to formulate /restate development tasks with special emphasis on the role of academic libraries in accomplishing knowledge management strategies of higher education institutions.

The theory and certain practical tools and techniques of knowledge management (KM) have already been applied in Hungarian libraries for 15 years. On the other hand there is no comprehensive analysis yet of the possible knowledge management activities of different types of libraries, and the role of libraries in the local, regional and national knowledge management either. Building (also) upon the results of the international and Hungarian knowledge management programs and projects of the higher education institutions, it has become absolute necessity to examine the role of academic libraries in the university knowledge management strategies and to systematically explore possible tasks to accomplish this role.

The aims of the dissertation can be summarized as follows (in brackets with the numbers of chapters dealing with the issues)

1. to review the international and Hungarian knowledge management literature and projects to identify the knowledge management practices and tools, as well as to provide recommendations for libraries for accomplishing the knowledge cycle and for applying KM tools in information and knowledge sharing; (3.5.)
2. to identify and analyze the tasks of different library types in institutional, regional and national knowledge management activities;(3.5.2.)
3. to identify and analyze the trends that have major effects on the future of the academic libraries and to provide recommendations for the Hungarian academic libraries; (5.2.)
4. to identify and categorize those activities of academic libraries that have to be accomplished in order to efficiently support the KM processes of the higher education institutions; (5.6.)
5. with the help of an online survey to explore the opinions of the Hungarian academic librarians on knowledge management, and to identify and map the information and knowledge sharing practices of the academic libraries. (6)

(2) Methodology of research

The aims of this dissertation have been achieved by the parallel usage of the different methods: literature review and analysis, document and homepage analysis, observation and online survey. The results are based on the following research activities:

1. reviewing and processing international and Hungarian knowledge management literature, and articles that were published in Hungarian librarian and information science journals on the theme of knowledge management;
2. monitoring international and Hungarian library projects that involved knowledge management as central elements and activities;
3. reviewing international and Hungarian library and information science literature with a special interest on the future trends of academic libraries;
4. analyzing the visions and mission statements of Hungarian academic libraries to discover (1) how they define their tasks within the institutional knowledge management strategy, (2) how they define themselves (3) what kind of innovative roles are mentioned in supporting the goals of the academic institution.
5. taking part in the TÁMOP 4.2.1 project 'The development of the eCompetence Multidisciplinary University Knowledge Management system and organisational developments for founding regional innovation framework at the University of West Hungary' project and cooperating with the Technology Transfer Office of University of West Hungary. As the representative of the Faculty of Arts I attended several knowledge management conferences and workshops by delivering lectures.
6. analysing the knowledge intensive services Hungarian and international academic libraries from multiple points of view, and categorising them based on related information on their homepages.
7. Designing and carrying out a questionnaire survey within Hungarian academic librarians as regards their opinions of knowledge management.

(3) The conceptual line of the PhD dissertation

Overall review of the tasks accomplished

When determining the goals and selecting the methods of my theses I aimed to research the topic with a complex view, putting special emphases on each important element. Because of the complexity of the research topic I had to accomplish the following tasks:

1. I had to examine the changing economic and social environment that has a special impact on both academic institutions and libraries. As a result of these changes the knowledge economy and knowledge society are being developed and based on innovative knowledge that is always ready to be renewed. (Chapter 2.2)
2. I had to review and analyse the conceptual framework of 'knowledge', the characteristics of the knowledge acquisition, knowledge development and knowledge sharing, the elements and the structure of the knowledge management cycle and the knowledge management tools and technologies. (Chapter 2.3 – 2.5)
3. I had to synthesize the statements and results of scientific papers and studies dealing with knowledge management activities in libraries. Based upon them I had to determine the roles of different types of libraries in institutional, local, regional and national knowledge management activities considering the changing functions and operational environment. (Chapter 3)
4. I had to examine and synthesize the ongoing and dynamic processes of transformation in higher education and the efficient knowledge management activities of universities and colleges. (Chapter 4)
5. I had to devote special interest to the trend analyses and papers dealing with the future of academic libraries and synthesising them I had to trace the future tasks system of the academic libraries (Chapter 5.2)
6. I had to examine the relationship of knowledge management in the libraries in two aspects: (1) the knowledge management activities within the library organization, (2) the activities and knowledge intensive services that are provided to support the KM processes of the parent institution. (Chapter 5)
7. I had to analyse both the so far performed and the possible activities of academic libraries in the knowledge management cycle in details.(Chapter 5.6.3)
8. I had to plan and carry out an online survey and analyse the results to identify the opinions of Hungarian academic librarians on knowledge management, and to map the information and knowledge sharing practices of the academic libraries. (Chapter 6)

(3.1) Changing economical and social environment

Nowadays there are complex and sweeping changes impactin on every facet of the economic and social environment. These changes have major effects on the development of both academic institutions and libraries.

Nowadays a more and more complex and detailed explanation of the concept of 'knowledge' is emerging and more and more sophisticated tools and methods of

knowledge sharing and creation are designed. The theory of knowledge management that was first introduced in business environment is now applied in the non-profit area as well. It serves as basis for the dissemination of the new concept of 'libraries as knowledge centres' as well as 'libraries as knowledge management centres'.

The knowledge economy is built upon four pillars or key areas that provide the theoretical and functional background for the investments and the developments.

1. economic and institutional regime that provides incentives for the efficient use of existing knowledge, for the creation of new knowledge;
2. educated and entrepreneurial population that can both create and use new knowledge;
3. a dynamic information infrastructure that can facilitate effective communication, dissemination and processing information;
4. an efficient innovation system comprising firms science and research centres, university, consultants am assimilate and adapt it to the local needs, and use it to create new knowledge and technology.¹

The libraries, especially academic libraries can be connected to all key areas, but they have to find even more linking points to be organic actors of knowledge economy and knowledge society. Such a linking point may be the active engagement in knowledge management activities and processes of the higher educational institutions.

(3.2) Trends effecting the roles and functions of libraries

Analysing library and information science papers, national strategies and recommendations of library organization and associations we can identify the following trends and characteristics of future of the libraries:

1. development of the physical environment of the libraries with special attention to the sustainability and green technology;
2. the library as 3rd place - enhancing the social and community role of libraries;
3. the library is a good place for studying and learning, as well as the spreading concept of librarians as educators;
4. the growing role of libraries in social media applications, making use of their possibilities, using collaborative knowledge creating techniques and cloud-based technologies;
5. development and dissemination of more and more library applications and services that based upon mobile technologies.

¹ Korea and the knowledge-based economy: Making the transition. Szerk. Carl Dahlman és Thomas Andersson. IBRD:World Bank, 2000. 14.p.
<http://books.google.hu/books?id=QAec13Ssd2cC&pg=PA1&hl=hu&source=gbs_selected_pages&cad=3#v=onepage&q&f=false

According to László Z. Karvalics the recent changes require a shift of the libraries as content provider and disseminator towards as content creator. He believes that there are deep structural changes that will result in the change of the roles of libraries and librarians. The functional integration of the information and knowledge provider/providing institutions, the revaluation of the identity and the roles of librarians in digital environment and the changing characteristic of added value makes it crucial to implementing knowledge management to the library organization and to taking more effective part in local, regional and national knowledge management activities.²

The theory of 'libraries as knowledge management centres' appeared in the 2000s in the United States.³ In Hungary Péter Kiszl dealing with the services public libraries provide for small and medium size companies outlined a very complex service system in 2004⁴ that fits well into this theory.

Realizing the importance of knowledge management and the role libraries can take in KM activities, more and more studies in LIS literature appeared in the 1990s introducing the concept and providing practical examples of its implementation to library work. Since the 2000s the Hungarian library community and scholars have been dealing with knowledge management as well, although there are only few examples of applying KM practices in libraries, mainly from corporate libraries.

Up to now there are only two doctoral dissertations prepared within the Library Science Program of the Doctoral School of Literary Studies at Eötvös Loránd University fully devoted to this subject: (1) Gabriella Alföldi Dán analyses the functions of research and academic libraries in the knowledge society, and (2) Andrea Sajó examines the role of corporate libraries in information and knowledge management.⁵ In addition Enikő Pajor and Máté Tóth deal with knowledge management in some parts of their Ph.D Theses.⁶

² Karvalics László: A lokális tudástermelés koordinációja: egy új, lehetséges könyvtárosi szerepkörrel. In: Szolgáltatás – Használó – Könyvtáros. Paradigma váltás a könyvtárak helyismereti munkájában. A Magyar Könyvtárosok Egyesülete Helyismereti Könyvtárosok Szervezete 15. Országos Konferenciája. Győr, 2008. július 9-11. / szerk. Mennyeiné Várszegi Judit. Győr: Kisfaludy Károly Megyei Könyvtár, 2009. 5-11. p

³ Parker, K. R. – Nitse, P. S. – Flowers, K. A.: Libraries as knowledge management centers. Library Management Journal -- Special Issue on Digital Libraries in the Knowledge Era: Knowledge Management and Semantic Web Technology, 2005 Vol. 26, No. 4/5, 176-189. p

⁴ Kiszl Péter: Hogyan tovább? – Üzleti információszolgáltatás a magyarországi könyvtárakban. In: Tudományos és Műszaki Tájékoztatás. 2004. 9.sz. 378.p. <http://tmt.omikk.bme.hu/show_news.html?id=3698&issue_id=454>

⁵ Alföldiné Dán Gabriella: A tudástársadalom és a tudományos szakkönyvtári ellátás. PhD értekezés.

Témavezető: Bobokné dr. Belányi Beáta. Bp. 2003. ELTE Könyvtártudományi Doktori Iskola. 172 p.

⁵ Sajó Andrea Ildikó: Az információs központok szerepe az információ- és tudásmenedzsmentben, különös tekintettel az infokommunikációs szektor igényeire. PhD értekezés. Témavezető prof. dr. Sebestyén György. Bp. 2003. ELTE Könyvtártudományi Doktori Iskola. 2003. 297 p.

⁶ Pajor Enikő: A láthatatlan/mély web felhasználása a könyvtári tájékoztatásban. PhD értekezés. Témavezető: prof. dr. Sebestyén György. Bp. 2006. ELTE Irodalomtudományi Doktori Iskola Könyvtártudományi Program,

Adapting to the complex functions and meeting the requirements of the society make it necessary for libraries to apply knowledge management in their practice, as well as realize their roles in the institutional, local as well as regional knowledge transfer and knowledge creation.

(3.3) Trends in higher education, reinterpretation of tasks and duties

The evolution of the knowledge economy and knowledge society and the large-scale development of technology have had a great impact on higher education institutions. The new learning and teaching methods powered by the modern technology, the expansion of higher education and changing requirements towards higher education have resulted in the changing higher education institutions and development of several new university models. The development of the European Higher Education Area and the European Research Area, and the global and European trends along with the regional and national reform measures have intensively effected the heterogenic academic institutions.

Adaptation to changing environment, the progress of the academic institutions and the need for innovation required the identification and codification of the knowledge asset of the universities and colleges. The opportunities should be created for realising knowledge spiral which can result in new innovative knowledge. For this reason higher academic institutions should implement knowledge management practices, and with knowledge management methods and tools the preconditions for capturing, storing, disseminating and utilizing organizational knowledge.

The knowledge management process should comprehend the overall activities of the academic institution from recruiting students to teaching and to building and function knowledge bases. Special emphases should be put on alumni services because it could support not only quality management but also knowledge management, industrial relations and research and development activities.

Engagement of the university management is not enough for implementing knowledge management practices. It is necessary to create a system of organizational units that work in close relation to accomplish the knowledge management strategy. Through reviewing the related special literature and studying homepages of universities I identified the following organizational units dealing with the knowledge management:

1. University management
2. Human resource management offices

3. Knowledge and technology transfer offices
4. Quality management offices
5. Computer or Informatics Units
6. Libraries and Information and Knowledge Centres

(3.4) The possible roles of the academic libraries in the new university structure

It is an important question what role academic libraries can take, what positions academic librarians can hold in the new university models (entrepreneurial university, Triple Helix model, 3 Generation University). What kind of roles can academic libraries take in institutional knowledge management activities?

As academic libraries are parts of the universities' organizations, the processes described above have a major impact on the operation and the development of these libraries. The services of academic libraries are changing everywhere and their functions are judged upon how they can meet the changing needs and requirements of the university community. To accomplish these, university librarians have to re-evaluate their roles and tasks and widen their functions. We can agree with Laura Bender that academic libraries should not just adapt to changes but lead them with proactive activities. They can only be viable if they themselves generate developments and innovation.⁷

Analysing trends and recommendations of the future academic libraries we can underline the following elements:

1. providing online full text documents;
2. implementing mobile technology into library services, using sophisticated technology with simple user interface;
3. rethinking the role of the physical spaces of the library;
4. providing tools and the content for developing new e-learning and blended learning materials in the virtual environment as well;
5. building new expansive collaborations with faculties and other university units;
6. limited resources and budget cuts increase the need for demonstrating the value of the academic libraries and the return on the investments;
7. renewing the skill sets of academic librarians to be able to provide multiple roles and new services.

⁷ Bender, Laura J.: The Keystone Principles - Creation and Influence. *Liber Quarterly* 2003. Vol. 13, No. 3-4. 378-388. p. <<http://liber.library.uu.nl/index.php/lq/article/view/7751>>

These new tasks require large-scale knowledge cumulating, managing knowledge asset of the academic library organization and developing the organizational knowledge.

After corporate libraries, academic libraries often serving as research and special libraries were the first ones to implement knowledge management into their organizational activities in the United States.

(3.5) Knowledge management activities of the Hungarian academic libraries

Although there are some good practices and examples, knowledge management has not yet been the integral part of the Hungarian academic libraries' activities.

Nowadays the complex services of the academic libraries, the challenges of the technology and the new requirements of the users result in the need of effective managements of the resources, especially human resources.

The immaterial assets of the universities are only useful for the institute if they are available – with hierarchical restrictions - for everybody. The academic libraries being content possessors and providing high quality and personalizes services can play a major role in knowledge management activities of the university. They make the institutional knowledge accessible, visualize and reveal the hidden knowledge asset and transform it into knowledge capital.

According to my research results I make the following statements:

Theses of the dissertation

1. I introduce the separation of the concepts of knowledge asset and knowledge capital.

Knowledge asset is the immaterial asset of an organization which can become knowledge capital by the action of sharing. An organisation can possess a 'large amount' of knowledge asset, but if it does not turn it into working knowledge capital, it won't be fully utilized for the organization and it cannot transform and combine with other knowledge elements. Knowledge asses can be in people reluctant to share their knowledge or personal files of computers.

2. I introduce a new representation of the knowledge cycle.

In contrast with formal representation of the knowledge cycle, I don't think it is a linear process. Knowledge cycle is a complex phenomenon, and cannot be described by a simple algorithm and as a simple cycle because there are several feedbacks from and to different directions. After all it is a cycle because the created new knowledge reflects the knowledge goals. The originality of my diagram resides in defining the connections between the elements and directions of the feedbacks.

3. There are signs that the Hungarian academic libraries have realized the importance of knowledge management, although there aren't any systematic approaches and standardize practices in libraries, and there are several underutilized opportunities.

After analysing the services, visions and mission statements of Hungarian academic libraries we can state that there are some knowledge intensive services in e.g. function of liaison librarians, coordination of e-learning systems and knowledge portals. Knowledge management has been implemented into the library and information science education, although the Hungarian library and information specialist associations do not pay yet special attention to this topic and there aren't any trainings and continuing professional education courses for librarians to learn about knowledge management. Theory and the practice in Hungarian academic libraries aren't represented in professional literature as much as those in libraries in the western and far-eastern countries. The results of the online survey verify my statement on the under utilization of the different knowledge sharing and creating techniques.

4. The academic library is the only organizational unit in the higher education institution which provides a complex support to every element of the knowledge management cycle.

Based upon the detailed reviewing of the special literature and the services of academic libraries I can state that academic libraries provide different kinds of services supporting every element of the knowledge management cycle. By reengineering their service structure they could realize and offer further support to the knowledge management cycle. By creating and operating the virtual learning environment and the virtual research environment, academic libraries could become the centre of the universities' knowledge management cycle.

5. Academic libraries have a leading role to transform organizational knowledge asset into working knowledge capital.

The major role of the knowledge management activities in the higher education institutions is to transform knowledge generated in the institute into real cultural, scientific and economical value. Academic libraries play an important role in accomplishing this transformation by the following activities: (1) visualising knowledge by collecting, processing and providing access to it; (2) providing physical and virtual environment for knowledge sharing and knowledge creating and hereby supporting the extension of knowledge capital; (3) providing knowledge intensive and tailored service to support the rise of the knowledge asset.

6. The base of the participation in the knowledge management cycle is establishing the liaison system.

The most effective way to reach the users is establishing the liaison system which could ensure that the services of the academic library are user-centric and tailored. The liaison librarians play the role of knowledge managers as mainly they do not hold the answer to given problems, but they are aware of the methods that lead to the answer, or know the person who is expert in the given field. In many cases they themselves build up the process and the procedure to solve the problem. Their work is an integral part of the knowledge management system of the academic institution.

Areas for further research

My PhD research project is by nature restricted to what I could accomplish in given time, but the important result of my project is a set of new questions that can be used as ideas for further research and tasks. The following areas of further research could be essential for libraries to play a more active role in knowledge management in the academic institutions:

1. the roles of the academic libraries in knowledge ecosystem of the higher education institutions;
2. the differences of the organizational culture in academic libraries, and the impact of organizational culture on knowledge sharing and creating activities;
3. the most used and preferred knowledge sharing and creating tools and services among academic library users;
4. planning training events and courses for librarians and creating distant learning and e-learning materials for these courses.